IN THE CLAIMS:

1. (Original) A method for automated management of hydrocarbon gathering, the method comprising:

collecting data from a plurality of automated measurement and control devices positioned in a hydrocarbon gathering system;

comparing the collected data with data stored in a database; and

using the data comparison to automatically schedule a test of at least one of the plurality of automated measurement and control devices.

2. (Original) The method of claim 1, wherein the data stored in the database is automatically updated with the collected data.

3. (Original) The method of claim 1, wherein the stored data comprises contractual provisions contained in contracts between a hydrocarbon gathering company and another entity.

4. (Original) The method of claim 3, wherein the contractual provisions comprise a testing frequency for the automated measurement and control devices.

5. (Original) The method of claim 1,wherein the management data comprises test scheduling data defined by a hydrocarbon gathering company.

6. (Original) The method of claim 1, wherein the plurality of measurement and control devices comprises electronic flow meters.

7. (Original) The method of claim 1, wherein the plurality of automated measurement and control devices comprises programmable logic controllers.

8. (Original) The method of claim 1, wherein the plurality of automated measurement and control devices comprises remote terminal unit.

9. (Original) The method of claim 1, wherein the plurality of automated measurement and control devices comprises automated gas composition analysis devices.

10. (Original) The method of claim 1, wherein using the data comparison further comprises:

notifying a field technician of a required test for at least one of the plurality of automated measurement and control devices; and

automatically notifying a witness of the test after the field technician has selected a test date.

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11. (Original) The method of claim 1, wherein using the data comparison further comprises:

analyzing the collected data to determine a volume of a flow of hydrocarbons through at least one of the plurality of automated measurement and control devices;

comparing the volume of the hydrocarbon flow to contractual provisions stored in the database; and

automatically scheduling meter tests according to the stored contractual provisions.

12. (Original) The method of claim 1, further comprising:

automatically updating the database after testing of at least one of the plurality of automated measurement and control devices.

13. (Original) The method of claim 11, wherein selected field personnel are automatically notified of the automatically scheduled tests.

14. (Original) The method of claim 13, wherein the automatic notification is transmitted electronically.

15. (Original) The method of claim 11, wherein a witness is automatically notified of the automatically scheduled tests.

16. (Original) The method of claim 15, wherein the automatic notification is transmitted electronically.

17. (Original) The method of claim 1, further comprising:

testing at least one of the plurality of automated measurement and control devices;

automatically comparing test data with master testing data stored in the database; and

generating an alarm if a variance between the new testing data and the master testing data exceeds a selected threshold.

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18. (Original) The method of claim 1, further comprising:

automatically measuring electrical current flow in at least one cathodic protection system positioned in the hydrocarbon gathering system; and

generating an alarm if the automatically measured electrical current flow exceeds a selected threshold.

19. (Original) The method of claim 1, wherein a computer system connected to the database automatically generates an alarm when a selected event is detected.

20. (Original) The method of claim 19, wherein the selected event comprises detection of non-conforming test data collected from at least one of the plurality of automated measurement and control devices.

21. (Original) The method of claim 19, wherein the selected event comprises detection of a failure of at least one of the plurality of automated measurement and control devices.

22. (Original) The method of claim 19, wherein the selected event comprises detection of a system imbalance beyond a selected threshold.

23. (Original) The method of claim 19, wherein the selected event comprises detection of a change in natural gas composition beyond a selected threshold.

24. (Original) A method for automated management of hydrocarbon gathering, the method comprising:

collecting well test data from at least one of a plurality of producing wells in a hydrocarbon gathering system;

using the well test data to automatically reallocate hydrocarbon production to at least one of the plurality of producing wells.

25. (Original) The method of claim 24, wherein the well test data is used to automatically reallocate production costs to at least one of the plurality of producing wells.

26. (Original) The method of claim 24, wherein the well test data is used to automatically populate regulatory forms.

27. (Original) The method of claim 24, wherein the well test data is automatically reported to selected users.

28. (Original) A method for automated management of hydrocarbon gathering, the method comprising:

calculating a system balance for a selected balance envelope;

collecting hydrocarbon sample test data from at least one of a plurality of automated measurement and control devices positioned in a hydrocarbon gathering system; and

using the hydrocarbon sample test data to automatically recalculate the system balance.

29. (Original) The method of claim 28, further comprising:

using the recalculated system balance to mix hydrocarbon products from at least two gathering pipelines to produce a desired hydrocarbon flow composition.

30. (Original) The method of claim 29, wherein the desired hydrocarbon flow composition is selected to minimize hydrocarbon processing costs.

31. (Original) The method of claim 28, wherein the plurality of measurement and control devices comprises electronic flow meters.

32. (Original) The method of claim 28, wherein the plurality of automated measurement and control devices comprises programmable logic controllers.

33. (Original) The method of claim 28, wherein the plurality of automated measurement and control devices comprises remote terminal units.

34. (Original) The method of claim 28, wherein the plurality of automated measurement and control devices comprises automated gas composition analysis devices.

35. (Original) The method of claim 28, wherein a database is automatically updated after recalculation of the system balance.

36. (Original) The method of claim 28, wherein the system balance comprises a volume balance.

37. (Original) The method of claim 28, wherein the system balance comprises an energy balance.

38. (Original) The method of claim 28, wherein the system balance comprises a natural gas component balance.

39. (Original) The method of claim 28, wherein the balance envelope comprises a combination of user defined selected ones of the plurality of automated measurement and control devices.

40. (Original) A method for automated management of hydrocarbon gathering, the method comprising:

calculating a system balance for a selected balance envelope;

testing at least one of a plurality of automated measurement and control devices positioned in a hydrocarbon gathering system; and

using the test data to automatically recalculate the system balance.

41. (Original) The method of claim 40, wherein the plurality of measurement and control devices comprises electronic flow meters.

42. (Original) The method of claim 40, wherein the plurality of automated measurement and control devices comprises programmable logic controllers.

43. (Original) The method of claim 40, wherein the plurality of automated measurement and control devices comprises remote terminal units.

44. (Original) The method of claim 40, wherein the plurality of automated measurement and control devices comprises automated gas composition analysis devices.

45. (Original) A method for automated management of hydrocarbon gathering, the method comprising:

calculating a composition of hydrocarbon flow in a hydrocarbon gathering system;

collecting hydrocarbon sample test data from a plurality of automated measurement and control devices positioned in the hydrocarbon gathering system; and

using the hydrocarbon sample test data to automatically recalculate the composition of hydrocarbon flow in the hydrocarbon gathering system.

46. (Original) The method of claim 45, wherein the plurality of measurement and control devices comprises electronic flow meters.

47. (Original) The method of claim 45, wherein the plurality of automated measurement and control devices comprises programmable logic controllers.

48. (Original) The method of claim 45, wherein the plurality of automated measurement and control devices comprises remote terminal units.

49. (Original) The method of claim 45, wherein the plurality of automated measurement and control devices comprises automated gas composition analysis devices.

50. (Original) The method of claim 45, further comprising:

automatically updating a database after recalculation of the hydrocarbon flow composition.

51. (Original) The method of claim 1, wherein the collected data and data stored in the database are used to model pipeline hydraulics.

52. (Original) The method of claim 1, further comprising:

using the collected data and data stored in the database to automatically generate a report for a selected unit of a hydrocarbon gathering system.

53. (Original) The method of claim 1, wherein the collected data and data stored in the database are used to evaluate reservoir production.